



# BIA Soils Staff

- Soil Scientists-11 located in western US.
- Soil Conservationists-18 throughout the nation.
- Natural Resource Specialists-some are soil scientists.

# [ Location of Soil Scientists ]

- Most are at the agency level-directly assisting tribes.
- A few soil scientists are at Regional offices-provide assistance to agencies and tribes.

# [ Soil Scientist Duties ]

- Soil and Range Inventories
- GIS support
- Land Reclamation/Restoration
- Land Use Planning
- Erosion control
- Irrigation and Agriculture
- NEPA compliance
- Education/Training

# [ BIA's Role in NCSS ]

- Act as advocate for Tribes to ensure their needs and interests are being met.
- Attend and provide input at field reviews
- Assist in development of Memorandums of Understanding
- Act as a liaison and foster communication.
- Other creative ways to work together??



# Resource Inventory Initiative

---

- ❑ Result of the **American Indian Agricultural Resource Management Act (AIARMA)**
- ❑ Soil and Vegetation Inventories are the basis for land use planning and resource allocation
- ❑ About 2 million nationwide available to conduct inventories on tribal lands.



# Who conducts range/soil inventories on tribal land?

- BIA or Tribal staff
- NRCS-through cooperative agreement with BIA/Tribes
- Contractors/consulting firms by bid



# 2009 Range Inventories in Western Region

- Uintah and Ouray-Utah-Ongoing-multi-year-BIA
- Fort Apache, AZ-80,000 acres-Tribal Staff
- Hopi Tribe-NRCS contract
- San Carlos Apache, AZ-BIA agency staff
- Completion of Walker River Inventory in NV including update of soils and correlation of ecological sites





Cottonwood West  
Sandy Upland 10-14" precip.  
Map point O-672 (photo 1 of 2)



AUG 15 2003





Moccasin Mesa

Sandy Upland 13-17" precip.

Map point 200 (photo 2 of 2)

pricklypear holding soil on site



AUG 19 2003

# [ BIA's role in assisting Tribes in using soil survey information ]

- Irrigation
- Agriculture
- Fire response and rehabilitation plans
- Forestry
- Site Assessments
- Planning
- Other interpretations



Yakama Nation  
Valley Floor

Wapato Irrigation Project = 141,000 acres  
Irrigation from Deep Wells = 3,200 acres approximate  
Sub-irrigated pasture and hayland = 8,000 acres

Wapato Irrigation Project estimated 2004 farm gate crop value = 161,598,700



|            |             |              |
|------------|-------------|--------------|
| Apples     | Grapes      | Peppers      |
| Apricots   | Hopps       | Plums        |
| Asparagus  | Huckleberry | Potatoes     |
| Beans      | Mint        | Prunes       |
| Broccoli   | Melons      | Pumpkins     |
| Cabbage    | Nectarines  | Rhubarb      |
| Cantaloupe | Okra        | Squash       |
| Char       | Onions      | Strawberries |
| Cherries   | Peaches     | Tomatoes     |
| Corn       | Pears       | Watermelons  |
| Cucumbers  | Peas        | Zucchini     |
| Eggplant   | Peonies     |              |



Irrigation induced high water table and/or poor water management seriously reduce crop production

End-row ponding

Capillary action

Canal seepage

Without Sufficient Profile Drainage  
Salt Conditions Persist  
Even with Good Quality Irrigation Water





Burned Area  
Emergency Response-

BAER Teams



## Mule Dry Canyon Rehabilitation Project, 2 Years After Fire

## Meadow Restoration

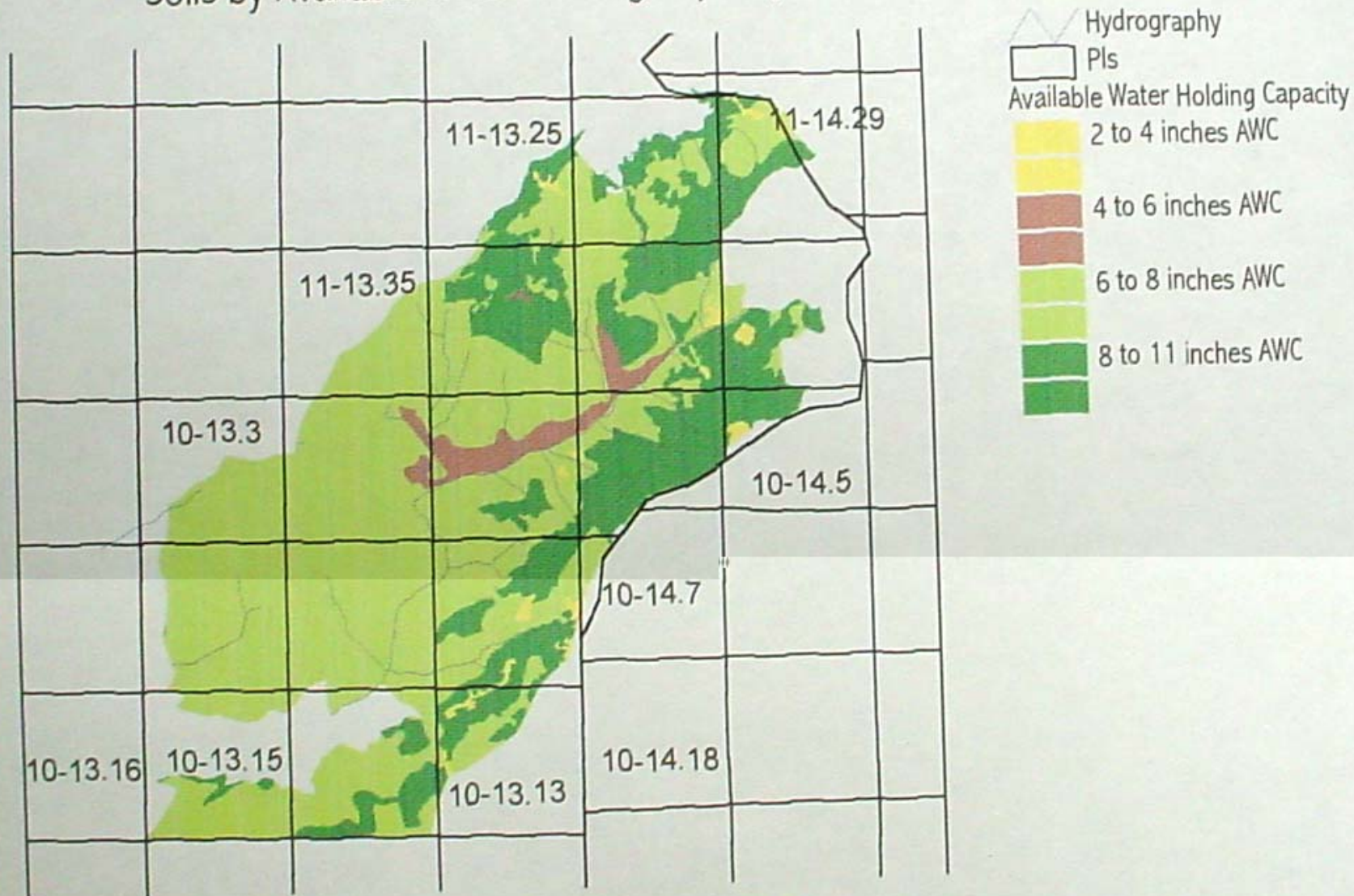
## Erosion on the Forest Road System

Other soil related  
Threats to productivity:

Soil Compaction  
Soil Displacement  
Fire (Soil Alteration)  
Wind throw

# Soil Survey and the Yakama Nation Feral Horse Program

# Piscoe Budworm Logging Unit Soils by Available Water Holding Capacity





## Adams View New 80 Home Addition, HUD Grant



Solar Powered Well

5,000 gallon storage tank

1.5 miles of water line

6 water delivery points for livestock watering

Flood Control Projects

Upward Integration of Soils Data

Toppenish Creek Alluvial Fan



# Soil Interpretations in ArcGIS

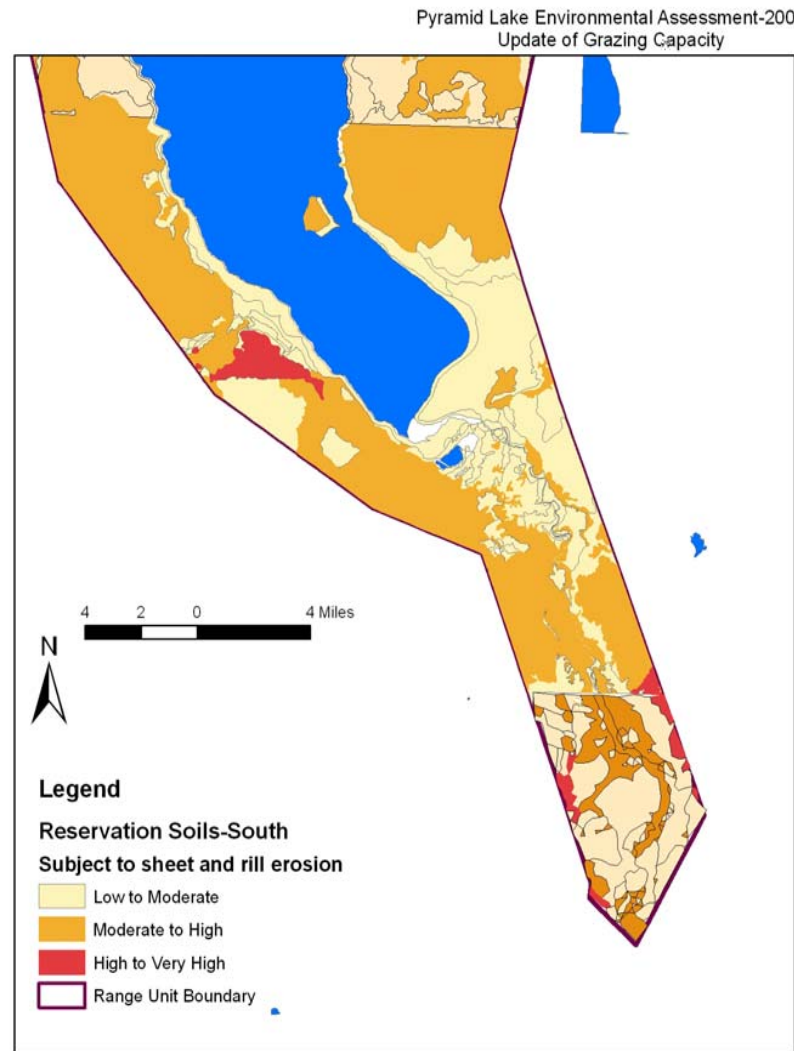


Figure 17. Potential Water Erosion Hazards-Pyramid Lake South

# Use of Soil Information for NEPA and Endangered Species Compliance

Pyramid Lake Environmental Assessment-2006  
Update of Grazing Capacity

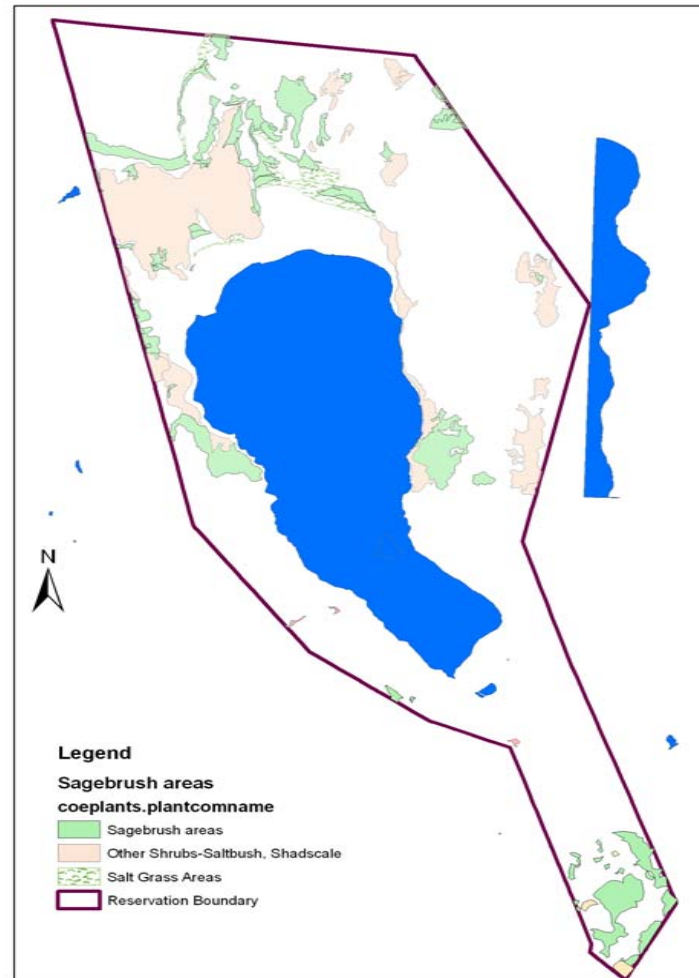


Figure 19-Sagebrush and Salt Grass Habitat for  
Endangered and Sensitive Species  
Carson Wandering Skipper and Greater Sage Grouse

# Education/Soils Training to Tribal and BIA staff

Soil Presentation to Hopi Tribe

# Positive Steps

- Joint BIA-NRCS-Tribal Soil Data Viewer Training in Phoenix in 2007
- Range Field Day on Ecological Sites on the San Carlos Reservation in 2008
- Cooperative field work on ecological sites and soils on the Uintah and Ouray Reservation in Utah in 2008.
- Good feedback from NRCS resource soil scientist and soil survey project leader for soils report for Havasupai flooding.



What else can we do?

- **Look for more ways we work together cooperatively.**
- **Keep Communication Lines Open**
- **Be Creative**